

Remarks

Review and reconsideration of this application are respectfully requested.

Claims 1, 2, 4-11, 17-19 and 25-26 remain in this application.

Claims 3, 12-16 and 20-24 have been canceled.

Claims 1-5, 8-15, 18-23 and 26 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 7-12 of U.S. Patent No 6,591,871.

In view of the Terminal Disclaimer submitted simultaneously herewith, it is believed that this rejection can now be withdrawn.

Claim 2 is rejected under 35 U.S.C. 112, because claim 2 recites the limitation "said polyalkylene terephthalate" and "said polyalkylene naphthalate" and there is insufficient antecedent basis for these limitations in the preceding claim.

Applicant has amended claim 2 to recite "said polybutylene terephthalate" and "said polybutylene naphthalate". Accordingly, it is believed that this rejection can now be withdrawn.

Claims 1-3, 8-13, 18-21 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Ito. The Examiner alleges that Ito discloses the recited tubular structure for use with fuel systems, which inherently has impermeability properties where the tubular structure comprises using a polyalkylene terephthalate or naphthalate such as polybutylene terephthalate or polybutylene naphthalate. The inner layer can be formed of a single or multiple layers where elemental carbon or carbon black can be used to provide the inner layer with static dissipating properties, and where a protective cover layer can be provided which can be made of a

polyolefin such as polypropylene or polyamides such as nylons, and the use of the tube for connecting to a fuel funnel is considered intended use.

Applicant contends that Ito teaches a corrugated fuel tube which has a multi-layered wall formed by a conductive inner layer and an outer layer. The conductive inner layer can be formed of a single layer material or a multi-layer material where elemental carbon black can be used to provide the inner layer with static dissipating properties, and where the outer layer can be provided which can be made of a polyolefin such as polypropylene or polyamides such as nylons. The corrugated fuel tube of Ito is formed from a first tubular structure around which, after solidification of the first tubular structure, a second tubular structure is formed by cross head extrusion.

The present invention as presently claimed is directed to a hose comprising a tubular structure, which has a polybutylene terephthalate or polybutylene naphthalate wall structure, and the polybutylene terephthalate or polybutylene naphthalate extends throughout the entire wall structure. Furthermore, the claims have now been amended to specifically exclude the presence of a conductive agent. The hose of the present invention is useful in a variety of applications where dissipation of static electricity buildup is not required. For example, the present hose is useful as automobile fuel vent hoses, industrial hydraulic hoses, torque converter hoses, power steering hoses, air conditioner hoses, brake fluid hoses, compressed gas hoses, refrigerator hoses, garden hoses, propane gas hoses, etc., but are not useful as fuel transport hoses as is the hose of Ito. Applicant submits that the structure of the present hose is neither taught by nor suggested by the teachings of Ito. Therefore, it is requested that this rejection be withdrawn.

Claims 1-3, 8, 9, 11-13 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Stieler. The Examiner alleges that Stieler discloses the recited tubular structure for use with fuel systems, which inherently has impermeability properties where the tubular structure comprises using a polyalkylene terephthalate or naphthalate such as polybutylene terephthalate or polybutylene naphthalate. The inner layer can be formed of a single or multiple layers where elemental carbon or carbon black can be used to provide the inner layer with static dissipating

properties, and where a protective cover layer can be provided which can be made of a polyolefin such as polypropylene or polyamides such as nylons, and the use of the tube for connecting to a fuel funnel is considered intended use.

Applicant contends that Stieler teaches single layer and multi-layer tubes. The single layer tubes are formed from a thermoplastic material selected from the group consisting of thermoplastic elastomers, polyamides and mixtures thereof. Suitable polyamides are selected from the group consisting of Nylon 11, Nylon 12, Nylon 6 and mixtures thereof, with Nylon 12 being most preferred. In a second embodiment, the tube of Stieler has an inner layer of a thermoplastic material selected from the group consisting of fluoroplastics, thermoplastic polyesters and mixtures thereof, with a fluoroplastic, multi-component system having as its three major components an alkylene fluoropolymer, a material made from a fluoro-olefin monomer or monomers, and a vinyl fluoride. Such materials are reacted by a suitable process to form a terpolymer material. In the third, fourth and fifth embodiments, the tubes of Stieler consist of an inner layer which is integrally bonded to the inner surface of a thick outer layer, the inner layer being a chemically dissimilar, permeation resistant, chemical resistant, fuel resistant thermoplastic material which is essentially a non-polyamide. Preferably, the non-polyamide inner layer is a polyester selected from the group consisting of polyethylene terephthalate, polybutylene terephthalate and mixtures thereof. This is the only mention of a polyalkylene terephthalate and there is no mention at all of a polyalkylene naphthalate. Thus applicant submits that such teaching of a multiple layer tube which may contain a polyethylene terephthalate or a polybutylene terephthalate does not anticipate the tubular structure of the present invention where the tubular structure has a polyalkylene terephthalate or a polyalkylene naphthalate wall structure where the polyalkylene terephthalate or polyalkylene naphthalate extends throughout the entire wall structure. Furthermore, the present claims have now been amended to specifically exclude the presence of a conductive agent. Thus, it is believed that the tubular structure of the present invention is neither anticipated nor rendered obvious by the teaching of Stieler. Accordingly, this rejection can be withdrawn.

Claims 1-3, 8, 9, 11-13, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated

by Brunnhofer. The Examiner alleges that Brunnhofer discloses the recited tubular structure for use with fuel systems which inherently has impermeability properties where the tubular structure comprises using a polyalkylene terephthalate or naphthalate such as polybutylene terephthalate, the inner layer 1 can be made of a polyolefin such as polypropylene or polyamides such as nylons, and the use of the tube for connecting to a fuel filler funnel is considered intended use.

Applicant submits that Brunnhofer teaches a multi-layered tubular member in which the outer layer is formed from a synthetic resin having a hardness equal to at most 0.8 of the hardness of the inner layer and a thickness equal to at most 0.5 of the thickness of the inner layer. Therefore, the tube is formed from two materials, each of which is characteristically different from the other, at least, in their respective hardness properties. The present invention, however, is directed to a hose having a polyalkylene terephthalate or polyalkylene naphthalate wall structure wherein the polyalkylene terephthalate or polyalkylene naphthalate extends throughout the entire wall structure and there is no physical distinction between the hardness properties anywhere in the entire wall structure. At page 4, lines 24-26, it is specifically stated that the polybutylene terephthalate or the polyalkylene naphthalate is the sole material to form the wall of the fuel transport hose. This structure is neither taught nor suggested by Brunnhofer. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 4, 5, 14, 15, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Walsh. The Examiner alleges that the reference to Ito discloses all of the recited structure with the exception of using chlorinated polyolefins such as chlorinated polyethylene for the outer layer. The patent to Walsh is cited as disclosing a fuel tube comprising an inner layer 12 which can be made conductive and protective layer 14 which can be made of chlorinated polyolefins of which polyethylene and polypropylene are known polyolefins. The Examiner, therefore, suggests that it would have been obvious to one skilled in the art to modify the cover layer of Ito to be formed of a chlorinated polyolefin as suggested by Walsh as such is another type of material used for cover layers which has different and improved properties.

Applicant has sufficiently discussed the Ito reference above and it is believed that such discussion clearly distinguishes the present tubular structure over the Ito patent. With respect to the Walsh patent, there is disclosed and claimed a very thin inner liner or layer consisting essentially of a polyfluorocarbon polymer, along with an outer layer or cover consisting essentially of a thermoplastic elastomer (TPE) which is relatively thick in comparison to the thin inner layer. The thin inner layer consists of a wide variety of polyfluorocarbon polymers, while the outer layer consists of six generic classes of thermoplastic elastomers: 1) styrene block copolymers, 2) polyolefinic blends, 3) elastomeric alloys, 4) polyurethanes, 5) copolyesters, and 6) polyamides. In as far as the applicant can ascertain, the only mention of chlorinated polyolefin made by Walsh is a reference to the second type of TPE wherein melt processible rubbers are said to consist of a plasticized chlorinated polyolefin blend often with significant amounts of carbon black. Carbon black is used as a conductive agent to dissipate any static buildup that may occur due to the flow of fuel in the tube. To be effective, the carbon black must be near the inner surface of the inner tubular structure, not in the outer surface of the tube or in the outer tubular structure. The present claims specifically preclude the presence of a conductive agent. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 4, 5, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunnhofer in view of Walsh. The Examiner alleges that the reference to Brunnhofer discloses all of the recited structure with the exception of using chlorinated polyolefins such as chlorinated polyethylene for the outer layer. The patent to Walsh is cited as disclosing a fuel tube comprising an inner layer 12 which can be made conductive and protective layer 14 which can be made of chlorinated polyolefins of which polyethylene and polypropylene are known polyolefins. The Examiner, therefore, suggests that it would have been obvious to one skilled in the art to modify the cover layer of Stieler to be formed of a chlorinated polyolefin as suggested by Walsh.

Applicant has sufficiently discussed the Brunnhofer reference above and it is believed that such discussion clearly distinguishes the present tubular structure over the Brunnhofer patent. With respect to the Walsh patent, there is disclosed and claimed a very thin inner liner or

layer consisting essentially of a polyfluorocarbon polymer, along with an outer layer or cover consisting essentially of a thermoplastic elastomer (TPE) which is relatively thick in comparison to the thin inner layer. The thin inner layer consists of a wide variety of polyfluorocarbon polymers, while the outer layer consists of six generic classes of thermoplastic elastomers: 1) styrene block copolymers, 2) polyolefinic blends, 3) elastomeric alloys, 4) polyurethanes, 5) copolyesters, and 6) polyamides. In as far as the applicant can ascertain, the only mention of chlorinated polyolefin made by Walsh is a reference to the second type of TPE wherein melt processible rubbers are said to consist of a plasticized chlorinated polyolefin blend often with significant amounts of carbon black. The reference clearly refers to the carbon black-containing, elastomeric alloy as being a thermoplastic outer. Carbon black is used as a conductive agent to dissipate any static buildup that may occur due to the flow of fuel in the tube. To be effective, the carbon black must be near the inner surface of the inner tubular structure, not in the outer surface of the tube or in the outer tubular structure. The claims of the present application specifically preclude the presence of a conductive agent. Since the Brunnhofer reference, as argued above, is not believed to anticipate or suggest the tubular structure of the present invention, it is believed that the Walsh patent does not render claims 4, 5, 14, and 15 obvious. Accordingly, it is respectfully requested that this rejection be withdrawn.

Claims 6, 7, 16, 17, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Kawazura. The Examiner alleges that the reference to Ito discloses all of the recited structure with the exception of providing a tie layer to connect the inner and outer layers formed of anhydride modified linear low density polyethylene. The patent to Kawazura discloses that it is old and well known to provide a connective or tie layer made of anhydride modified linear low density polyethylene to connect inner and outer layers made of different materials including PBT and PBN. It would have been obvious to one skilled in the art to modify the hose in Ito by providing a tie layer formed of anhydride modified linear low density polyethylene to connect the PBT or PBN layer to other material layers as suggested by Kawazura to prevent elimination and thereby save repair or replacement costs.

Applicant has sufficiently discussed the Ito reference above and it is believed that such

discussion clearly distinguishes the present tubular structure over the Ito reference. With respect to the Kawazura patent, applicant suggests that the rejected claims falling under this rejection are dependent claims and, as such, these dependent simply further limit the corresponding independent claims from which they depend. In view of the above distinctions between the present hose of the present invention and the structure of Ito, it is believed that the disclosure of Kawazura adds nothing to the primary reference to Ito, which would render the present invention obvious. Furthermore, the Kawazura reference is so voluminous and covers so many different layers and compounds, that it would be virtually impossible for one to study both Ito and Kawazura and emerge with the effective tubular structure of the present invention. Accordingly, it is respectfully requested that this rejection be withdrawn.

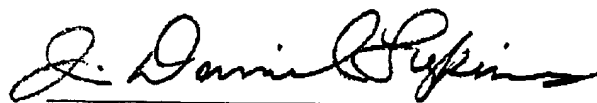
Claims 6, 7, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunnhofer in view of Kawazura. The Examiner alleges that the reference to Brunnhofer discloses all of the recited structure with the exception of providing a tie layer to connect the inner and outer layers formed of anhydride modified linear low density polyethylene. The patent to Kawazura discloses that it is old and well known to provide a connective or tie layer made of anhydride modified linear low density polyethylene to connect inner and outer layers made of different materials including PBT and PBN. It would have been obvious to one skilled in the art to modify the hose in Brunnhofer by providing a tie layer formed of anhydride modified linear low density polyethylene to connect the PBT or PBN layer to other material layers as suggested by Kawazura to prevent elimination and thereby save repair or replacement costs.

Applicant has sufficiently discussed the Brunnhofer reference above and it is believed that such discussion clearly distinguishes the present tubular structure over the Brunnhofer reference. With respect to the Kawazura patent, applicant suggests that the rejected claims falling under this rejection are dependent claims and, as such, these dependent simply further limit the corresponding independent claims from which they depend. In view of the above distinctions between the present hose of the present invention and the structure of Ito, it is believed that the disclosure of Kawazura adds nothing to the primary reference to Brunnhofer, which would render the present invention obvious. Furthermore, the Kawazura reference is so

voluminous and covers so many different layers and compounds, that it would be virtually impossible for one to study both Brunnhofer and Kawazura and emerge with the effective tubular structure of the present invention. Accordingly, it is respectfully requested that this rejection be withdrawn.

In view of the foregoing amendments and remarks, it is believed that the present application is now in condition for allowance and an early indication thereof is earnestly solicited.

Respectfully submitted,



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